Proximity Camera Head and Inplane Sensor Head Experiment Timeline

X-Ray Exposure

A2036, A2033, and A0247 (early June)

All boards were powered with ±15V but asleep throughout irradiation. X-ray exposure of A2047 boards indicates that it remains fully functional after 400 Gy of ionizing radiation from a 50kEv x-ray source. Both the A2033 and A2036 boards fail to wake and acquire images (due to a DG411DY failure) somewhere between 100-400 Gy.

A2036, Hourly Data (mid June)

Four A2036 boards were irradiated to 850 Gy with hourly data acquisition. All boards were powered with ±15V but asleep throughout irradiation. All boards had the DG411DY switch facing the x-ray source. The boards failed at around 300 Gy due to the failure of the DG411DY quad analog switch.

Cs-137 Exposure

A2036 and A2047, No Lead Attenuators (early July)

Two A2036 and two A2047 boards were irradiated in the Cs-137 source to 5 kGy at a dose rate of 30 Gy/hr with hourly data acquisition. All boards were powered with ±15V but asleep throughout irradiation. Both A2036 boards failed at a dose between 30 Gy and 60 Gy. The A2047 boards failed at a dose of 270Gy.

A2036 and A2047, With Lead Attenuators (mid July)

Two A2036 and two A2047 boards were irradiated in the Cs-137 source to 450 Gy at a dose rate of 3 Gy/hr with hourly data acquisition. All boards were powered with ±15V but asleep throughout irradiation. The A2047 boards failed at a dose of about 300 Gy. One of the A2036 samples failed after 10 Gy, the other failed after 40 Gy.

A2036 and A2047, After Burning In (late July)

Four A2036 boards were irradiated in the Cs-137 source to 130 Gy at a dose rate of 3 Gy/hr with hourly data acquisition. Prior to irradiation, all boards were burnt in to eliminate the possibility of faulty boards. They were all powered with ±15V but asleep throughout the burn-in and irradiation. All four boards failed after 10Gy.

A2036, Powered Off (early August)

Four A2036 boards were irradiated in the Cs-137 source to 1.8 kGy at a dose rate of 3 Gy/hr with hourly data acquisition. All boards were powered off between current consumption measurements. All boards failed after 180 Gy.